From: Webster, Cliff [mailto:websterc@carneylaw.com]
Sent: Friday, August 31, 2012 12:26 PM
To: Burkland, Anne
Cc: Kim Martin; Jeff Gombosky; Dave Mastin; MPowell@phrma.org
Subject: Studies of pharmaceuticals in the environment

Anne:

Here are three studies concerning the cause of trace levels of drug residues found in the environment. Mayor Baker asked for this information during the August 16th meeting. Please share this information with him and the other subcommittee members.

The Food & Drug Administation web page on disposing of medicines says:

> Despite the safety reasons for flushing drugs, some people are questioning the practice because of concerns about trace levels of drug residues found in surface water, such as rivers and lakes, and in some community drinking water supplies. However, the main way drug residues enter water systems is by people taking medications and then naturally passing them through their bodies, says Raanan Bloom, Ph.D., an environmental assessment expert in FDA's Center for Drug Evaluation and Research. "Most drugs are not completely absorbed or metabolized by the body, and enter the environment after passing through waste water treatment plants."
> http://www.fda.gov/forconsumers/consumerupdates/ucm101653.htm

A new report from the U.S. Geological Survey (U.S. Department of the Interior), entitled “Contaminants in Wastewater-Treatment-Plant Effluent” in the Columbia River, says clearly that pharmaceuticals are metabolized and then excreted:

> Fifty to 90 percent of the active ingredients in these pharmaceuticals passes through the body and is excreted as either the parent compound or its metabolites (Lubliner and others, 2008). From there, these pharmaceuticals enter the wastewater stream, to either a WWTP or a septic system.
> http://pubs.usgs.gov/sir/2012/5068/

Finally, in a landfill study commissioned by PhRMA (attached), one of the main conclusion points was:

If all unused medicines are disposed of in landfills, a very conservative estimate of 99.9% to 99.97% of API surface water releases would be due to patient excretion (at an assumed landfill sorption efficiency of 0.5). The landfill disposal pathway to surface water accounts for an average of 0.01% to 0.03% of the estimated aggregate annual surface water releases for the 24 APIs evaluated by this study. These landfill contributions are based upon conservative assumptions of landfill leachate generation that would tend to predict higher contributions.

Please let me know if you have questions.

Cliff

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